

TCT@ACC-i2: Invasive and Interventional Cardiology

LONGITUDINAL DRUG ELUTING STENT ELONGATION PHENOMENON AFTER HIGH PRESSURE ADDITIONAL POST STENT DILATATION: INSIGHTS FROM BENCH TESTING

Poster Contributions

Poster Sessions, Expo North

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Objective: To evaluate how post stent dilatation with large balloons has impact on stent elongation.

Methods: Four kind of drug eluting stents (Tested stents were shown in Fig1-b) were deployed into a silicon tube model as follows; 10mm of one side of the stent was attached to the model wall and 10mm on the opposite side of the stent was free from the vessel wall (shown in Fig1-a). Then, in each model, post stent dilatation (PD) (Tested stents were shown in Fig1-b) was performed with four different kind of 3.5mm balloon at nominal (NP) and rated balloon pressure (RD). A total of 16 stents were tested, and difference of degree of stent elongation in the stent portion which was free from the wall (delta stent length) was measured and compared among different kind of stents types and different kind of balloons.

Result: Stent elongation was observed in all models. Delta stent length before and after PD at NP and RP were 0.41 ± 0.15 mm and 1.15 ± 0.37 mm, respectively. Compared with different four kind of stents, there was no significant difference in delta stent length before and after PD at both NP and RP ($p=0.96$, 0.58 , respectively), however compared with different four kind of post dilatation balloons, significant difference in delta stent length before and after PD was observed at both NP and RP ($p=0.016$, <0.001 , respectively) (Fig 2).

Conclusion: Stent elongation after post stent dilatation was observed in this ex vivo model which may be mainly influenced by the type of post dilatation balloons.

Fig 1-a Ex-vivo model

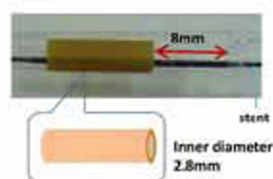
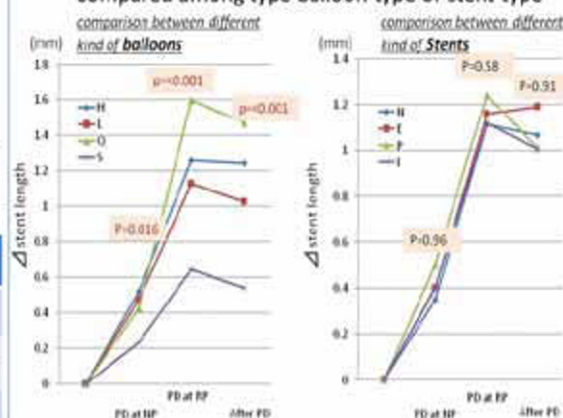


Fig 1-b Tested stents and balloons

Tested stent	Tested post dilatation balloon
Nobori (N), Terumo	Hiryu (H), Terumo
Taxus Element (E), Boston Scientific	Powered Lacrosse 2 (P), Goodman
Siience Prime (P), Abbott vascular	NC Quantam Apex (Q), Boston Scientific
Resolute Integrity (I), Medtronic	Sapphire NC (S), Orbis Medical

Fig 2 Difference of Stent Elongation compared among type balloon type or stent type



*PD; postdilatation, NP; nominal pressure, RP; rated pressure

*Abbreviation of stents or balloons were shown in Fig1-b